CHECKLIST ENVIRONMENTAL ASSESSMENT

Project Name:	Shane Moe Center Pivot Improvement
Proposed Implementation Date:	Fall 2019
Proponent:	Shane Moe
Location:	8N 12E 16
County:	Wheatland
Trust:	Common Schools

I. TYPE AND PURPOSE OF ACTION

The proposed project is to install two center pivots, one water diversion, two pumping plants, and several different water pipelines on state trust land. The project would be a change from a flood irrigated to sprinkler irrigated system. The water will be diverted from the Martinsdale Canal.

II. PROJECT DEVELOPMENT

1. PUBLIC INVOLVEMENT, AGENCIES, GROUPS OR INDIVIDUALS CONTACTED:

Provide a brief chronology of the scoping and ongoing involvement for this project.

The Department of Natural Resources and Conservation (DNRC)
Northeastern Land Office (NELO)
Proponent: Shane Moe
Surface Lessees: Shane Moe

2. OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION, LIST OF PERMITS NEEDED:

The DNRC, and NELO have jurisdiction over this proposed project.

The proponent is responsible for acquiring all required permits for the proposed project. The proponent is responsible for settling all surface damages with the surface lessees.

DNRC is not aware of any other agencies with jurisdiction or other permits needed to complete this project

3. ALTERNATIVES CONSIDERED:

Alternative A (No Action) – Under this alternative, the Department does not grant permission to build two center pivots and associated infrastructure.

Alternative B (the Proposed Action) – Under this alternative, the Department does grant permission to build two center pivots and associated infrastructure.

III. IMPACTS ON THE PHYSICAL ENVIRONMENT

- *RESOURCES potentially impacted are listed on the form, followed by common issues that would be considered.*
- *Explain POTENTIAL IMPACTS AND MITIGATIONS following each resource heading.*
- *Enter "NONE" If no impacts are identified or the resource is not present.*

4. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE:

Consider the presence of fragile, compactable or unstable soils. Identify unusual geologic features. Specify any special reclamation considerations. Identify any cumulative impacts to soils.

The two tables below show that this area is well within the parameters for irrigated farmland in Montana. The Irrigate capability class shows that most of the soils are well suited for irrigated farming. The 0.4% rated as five was just a small chunk of land included in the area of interest to include the canal. The same is true of the 4.7 acres which makes up 5.8% of the area of interest. The irrigated capability subclass shows that the only limitation is erosion which is mitigated by leaving vegetation on the site all the time. Since this will be a hay field there will be vegetation year round and thus there should be no excessive erosion issues. The area is also rated a slight for off road erosion which confirms that erosion should not be an issue.

Tables — Irrigated Capability Class — Summary By Map Unit

Summary by Map Unit — Wheatland County Area, Montana (MT624)

Summary by Map Unit — Wheatland County Area, Montana (MT624)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
402A	Clinton, frequently flooded-Swampcreek complex, 0 to 2 percent slopes	5	0.3	0.4%
408A	Lallie, rarely flooded-Swampcreek complex, 0 to 2 percent slopes	3	4.7	5.8%
461B	Varney gravelly loam, 0 to 4 percent slopes, fan	3	76.1	93.8%
Totals for Area of Interest			**81.1**	**100.0%**

Tables — Irrigated Capability Subclass — Summary By Map Unit

Summary by Map Unit — Wheatland County Area, Montana (MT624)

Summary by Map Unit — Wheatland County Area, Montana (MT624)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
402A	Clinton, frequently flooded-Swampcreek complex, 0 to 2 percent slopes	w	0.3	0.4%
408A	Lallie, rarely flooded-Swampcreek complex, 0 to 2 percent slopes	w	4.7	5.8%
461B	Varney gravelly loam, 0 to 4 percent slopes, fan	e	76.1	93.8%
Totals for Area of Interest			**81.1**	**100.0%**

Table — Erosion Hazard (Off-Road, Off-Trail) — Summary by Rating Value

Summary by Rating Value

Summary by Rating Value

Rating	Acres in AOI	Percent of AOI
Slight	81.1	100.0%
Totals for Area of Interest	**81.1**	**100.0%**

The next two tables show that the sprinkler irrigation system proposed by this project would be better than the current flood irrigation system. As shown in the first table, most of the land is rated as not limited for sprinkler irrigation. The second table shows that same acreage as somewhat limited for flood irrigation. With this information a pivot irrigation system would be an improvement of water usage on these soils.

Table — Irrigation, Sprinkler (General) — Summary by Rating Value

Summary by Rating Value

Summary by Rating Value

Rating	Acres in AOI	Percent of AOI
Not limited	76.1	93.8%
Very limited	5.0	6.2%
Totals for Area of Interest	**81.1**	**100.0%**

Table — Irrigation, Surface (Level) — Summary by Rating Value

Summary by Rating Value

Summary by Rating Value

Rating	Acres in AOI	Percent of AOI
Somewhat limited	76.1	93.8%
Very limited	5.0	6.2%
Totals for Area of Interest	**81.1**	**100.0%**

Finally, the soils susceptibility for compaction is rated as a medium. This is something that will need managed and the pivot tire tracks will have to be tilled up when the hay field is renovated. The small tire tracks are the only major concern for compaction.

Table — Soil Susceptibility to Compaction — Summary by Rating Value

Summary by Rating Value

Summary by Rating Value

Rating	Acres in AOI	Percent of AOI
Medium	81.1	100.0%
Totals for Area of Interest	**81.1**	**100.0%**

No cumulative negative affects to geology and soil quality, stability and moisture are anticipated.

5. WATER QUALITY, QUANTITY AND DISTRIBUTION:

Identify important surface or groundwater resources. Consider the potential for violation of ambient water quality standards, drinking water maximum contaminant levels, or degradation of water quality. Identify cumulative effects to water resources.

This project would provide a more efficient way if distributing irrigation water across the land. The new system will be approximately 30% more efficient due to eliminating loss to groundwater in the ditch and less evaporation while irrigating. The water will come from a new water diversion installed on the Martinsdale canal. The water used in this irrigation system is already adjudicated for irrigating and the volume will not change just the method of application.

There should be no negative adverse effects to water quality due to this project.

No negative adverse effects to the water resources are anticipated.

6. AIR QUALITY:

What pollutants or particulate would be produced? Identify air quality regulations or zones (e.g. Class I air shed) the project would influence. Identify cumulative effects to air quality.

The air quality in the area will not be affected.

No cumulative effects to air quality are anticipated.

7. VEGETATION COVER, QUANTITY AND QUALITY:

What changes would the action cause to vegetative communities? Consider rare plants or cover types that would be affected. Identify cumulative effects to vegetation.

If re-seeding is necessary the proponent will acquire certified, weed free seed and refer to the Plant Materials Tech Note No. MT-46 (Rev. 4) dated September 2013 for seeding rates.

There are some noxious weeds present on the site. In the past there has been Canada thistle and Spotted knapweed present on the tract. It is already the lessee's responsibility to spray for noxious weeds and that would continue if the pivot is installed. Any new weeds brought in by the installation would also be the responsibility of the lessee to spray.

No rare plants or cover types are present.

Plant Species of Concern (switch to Animals report)

Species List Last Updated **09/25/2018**

0 Species
Filtered by the following criteria:
Township = 008N012E (based on mapped Special Occurrences)

No long term cumulative effects to vegetation are anticipated.

8. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS:

Consider substantial habitat values and use of the area by wildlife, birds or fish. Identify cumulative effects to fish and wildlife.

The area is not considered critical wildlife habitat. Though it is probably used by much wildlife because of the good forage and close water supply. However, the area affected by this project is already disturbed hay land and would continue to be after this project.

No cumulative effects are anticipated.

9. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES:

Consider any federally listed threatened or endangered species or habitat identified in the project area. Determine effects to wetlands. Consider Sensitive Species or Species of special concern. Identify cumulative effects to these species and their habitat.

The Montana Natural Heritage Project's Species of Concern (MNHP SOC) report show that there are 6 animals species of concern in the area. Most of them are birds and will only be temporarily displaced by the construction if they are present. The northern red bellied dace could be affected by being sucked into the system from the canal. This will be mitigated with screens at the intake points and along the system.

Species of Concern
6 Species
Filtered by the following criteria:
Township = 008N012E (based on mapped Species Occurrences)

BIRDS (AVES) — 5 SPECIES — TOWNSHIP = 008N012E (based on mapped Species Occurrences)

SCIENTIFIC NAME / COMMON NAME / TAXA SORT	FAMILY (SCIENTIFIC) / FAMILY (COMMON)	GLOBAL RANK	STATE RANK	USFWS	USFS	BLM	FWP SWAP	% OF GLOBAL BREEDING RANGE IN MT	% OF MT THAT IS BREEDING RANGE	HABITAT
Aquila chrysaetos Golden Eagle	*Accipitridae* Hawks / Kites / Eagles	G5	S3	BGEPA; MBTA; BCC17		SENSITIVE	SGCN3	3%	100%	Grasslands
		Species Occurrences verified in these Counties: Beaverhead, Big Horn, Blaine, Broadwater, Carbon, Carter, Cascade, Chouteau, Custer, Dawson, Deer Lodge, Fallon, Fergus, Flathead, Gallatin, Garfield, Glacier, Golden Valley, Granite, Hill, Jefferson, Judith Basin, Lake, Lewis and Clark, Liberty, Lincoln, Madison, Meagher, Mineral, Missoula, Musselshell, Park, Petroleum, Phillips, Pondera, Powder River, Powell, Prairie, Ravalli, Richland, Roosevelt, Rosebud, Sanders, Sheridan, Silver Bow, Stillwater, Sweet Grass, Teton, Toole, Treasure, Valley, Wheatland, Wibaux, Yellowstone							
Ardea herodias Great Blue Heron	*Ardeidae* Bitterns / Egrets / Herons / Night-Herons	G5	S3	MBTA			SGCN3	3%	100%	Riparian forest
		Species Occurrences verified in these Counties: Beaverhead, Big Horn, Blaine, Broadwater, Carbon, Carter, Cascade, Chouteau, Custer, Dawson, Deer Lodge, Fallon, Fergus, Flathead, Gallatin, Garfield, Glacier, Golden Valley, Granite, Hill, Jefferson, Judith Basin, Lake, Lewis and Clark, Liberty, Lincoln, Madison, Meagher, Mineral, Missoula, Musselshell, Park, Petroleum, Phillips, Pondera, Powder River, Powell, Prairie, Ravalli, Richland, Roosevelt, Rosebud, Sanders, Sheridan, Silver Bow, Stillwater, Sweet Grass, Teton, Treasure, Valley, Wheatland, Wibaux, Yellowstone **State Rank Reason:** Small breeding population size, evidence of recent declines, and declining regeneration of riparian cottonwood forests due to altered hydrology and grazing.							
Buteo regalis Ferruginous Hawk	*Accipitridae* Hawks / Kites / Eagles	G4	S3B	MBTA; BCC10; BCC17		SENSITIVE	SGCN3	11%	95%	Sagebrush grassland
		Species Occurrences verified in these Counties: Beaverhead, Blaine, Broadwater, Carter, Cascade, Chouteau, Custer, Daniels, Dawson, Fallon, Fergus, Gallatin, Garfield, Glacier, Golden Valley, Hill, Jefferson, Judith Basin, Lewis and Clark, Liberty, Madison, Meagher, Musselshell, Park, Petroleum, Phillips, Pondera, Powder River, Prairie, Roosevelt, Rosebud, Sheridan, Stillwater, Teton, Toole, Valley, Wheatland, Wibaux, Yellowstone							
Charadrius montanus Mountain Plover	*Charadriidae* Plovers	G1	S2B	MBTA; BCC11; BCC17		SENSITIVE	SGCN2	20%	73%	Grasslands
		Species Occurrences verified in these Counties: Blaine, Broadwater, Carbon, Fergus, Garfield, Golden Valley, Jefferson, Madison, Musselshell, Petroleum, Phillips, Rosebud, Teton, Toole, Treasure, Valley, Wheatland								
Numenius americanus Long-billed Curlew	*Scolopacidae* Sandpipers	G5	S3B	MBTA; BCC10; BCC11; BCC17		SENSITIVE	SGCN3	19%	100%	Grasslands
		Species Occurrences verified in these Counties: Beaverhead, Big Horn, Blaine, Broadwater, Carbon, Carter, Cascade, Chouteau, Custer, Daniels, Dawson, Deer Lodge, Fallon, Fergus, Flathead, Gallatin, Garfield, Glacier, Golden Valley, Granite, Hill, Jefferson, Judith Basin, Lake, Lewis and Clark, Liberty, Madison, Meagher, Missoula, Musselshell, Park, Petroleum, Phillips, Pondera, Powder River, Powell, Prairie, Ravalli, Richland, Roosevelt, Rosebud, Sanders, Sheridan, Stillwater, Sweet Grass, Teton, Toole, Treasure, Valley, Wheatland, Wibaux, Yellowstone							

FISH (ACTINOPTERYGII) — 1 SPECIES — TOWNSHIP = 008N012E (based on mapped Species Occurrences)

SCIENTIFIC NAME / COMMON NAME / TAXA SORT	FAMILY (SCIENTIFIC) / FAMILY (COMMON)	GLOBAL RANK	STATE RANK	USFWS	USFS	BLM	FWP SWAP	% OF GLOBAL BREEDING RANGE IN MT	% OF MT THAT IS BREEDING RANGE	HABITAT
Chrosomus eos Northern Redbelly Dace	*Cyprinidae* Minnows	G5	S3				SGCN3	4%	27%	Small prairie rivers
		Species Occurrences verified in these Counties: Blaine, Cascade, Chouteau, Daniels, Dawson, Fergus, Golden Valley, Hill, Judith Basin, Lewis and Clark, Pondera, Meagher, Musselshell, Petroleum, Phillips, Pondera, Richland, Roosevelt, Sheridan, Stillwater, Sweet Grass, Teton, Toole, Valley, Wheatland, Wibaux **State Rank Reason:** The Northern Redbelly Dace is currently listed as an "S3" species of concern in Montana because they are potentially at risk because of limited and/or declining numbers, range and/or habitat, even though it may be abundant in some areas.							

There are no rare or unique plants around this project, as shown in the MNHP SOC report below.

Plant Species of Concern (switch to Animals report)
0 Species
Filtered by the following criteria:
Township = 008N012E (based on mapped Species Occurrences)
Species List Last Updated **09/25/2018**

Temporary displacement may occur No population effect is anticipated.

There are no known unique, endangered, fragile or limited environmental resources on this site.

No cumulative effects to habitat are anticipated.

10. HISTORICAL AND ARCHAEOLOGICAL SITES:

Identify and determine effects to historical, archaeological or paleontological resources.

A Class I (literature review) level review was conducted by the DNRC staff archaeologist for the area of potential effect (APE). This entailed inspection of project maps, DNRC's sites/site leads database, land use records, General Land Office Survey Plats, and control cards. The Class I search revealed that *Antiquities* have not been identified in the APE. No additional archaeological investigative work will be conducted in response to this proposed development. However, if previously unknown cultural or paleontological materials are identified during project related activities, all work will cease until a professional assessment of such resources can be made.

There are several historic sites present in this section. One is a small cabin next to the river that is on the other side of the road from this project. There is also a stone circle but it is in the uplands above the hayfield and will not be disturbed. The only historic site that will be affected is the Martinsdale canal. The canal will just be altered at a currently installed headgate for flood irrigation

No effects on historical, archaeological, or paleontological resources anticipated.

11. AESTHETICS:
Determine if the project is located on a prominent topographic feature, or may be visible from populated or scenic areas. What level of noise, light or visual change would be produced? Identify cumulative effects to aesthetics.

These pivots will be seen from a county road. However due to the agricultural nature of the region such sites are expected and will not be ruining any scenic vistas.

No direct or cumulative effects to aesthetics are anticipated.

12. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY:
Determine the amount of limited resources the project would require. Identify other activities nearby that the project would affect. Identify cumulative effects to environmental resources.

No demands on limited resources are required for this project.

No direct or cumulative effects to environmental resources are anticipated.

13. OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA:
List other studies, plans or projects on this tract. Determine cumulative impacts likely to occur as a result of current private, state or federal actions in the analysis area, and from future proposed state actions in the analysis area that are under MEPA review (scoped) or permitting review by any state agency.

There are no other projects or plans being considered on the tracts listed in this EA Checklist.

IV. IMPACTS ON THE HUMAN POPULATION

- *RESOURCES potentially impacted are listed on the form, followed by common issues that would be considered.*
- *Explain POTENTIAL IMPACTS AND MITIGATIONS following each resource heading.*
- *Enter "NONE" If no impacts are identified or the resource is not present.*

14. HUMAN HEALTH AND SAFETY:
Identify any health and safety risks posed by the project.

Once the installation has been completed, there will be no health and safety concerns associated with this project.

15. INDUSTRIAL, COMMERCIAL AND AGRICULTURE ACTIVITIES AND PRODUCTION:
Identify how the project would add to or alter these activities.

This project could significantly increase the production of hay on this tract. The production is currently 2-3 tons per acre but is expected to jump up to as much as 5 tons per acre after installation

This project will not add to or deter from other industrial or commercial activities in this area.

16. QUANTITY AND DISTRIBUTION OF EMPLOYMENT:
Estimate the number of jobs the project would create, move or eliminate. Identify cumulative effects to the employment market.

The project will not create any new jobs. Work will be contracted out for the installation and the jobs are already held by the contractor.

No cumulative effects to the employment market are anticipated.

17. LOCAL AND STATE TAX BASE AND TAX REVENUES:
Estimate tax revenue the project would create or eliminate. Identify cumulative effects to taxes and revenue.

There will be no cumulative effects to tax revenues.

18. DEMAND FOR GOVERNMENT SERVICES:
Estimate increases in traffic and changes to traffic patterns. What changes would be needed to fire protection, police, schools, etc.? Identify cumulative effects of this and other projects on government services

There will not be any increases in traffic or traffic patterns if this project is approved.

There will be no direct or cumulative effects on government services.

19. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS:
List State, County, City, USFS, BLM, Tribal, and other zoning or management plans, and identify how they would affect this project.

There are no zoning or other agency management plans affecting this project.

20. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES:
Identify any wilderness or recreational areas nearby or access routes through this tract. Determine the effects of the project on recreational potential within the tract. Identify cumulative effects to recreational and wilderness activities.

There will be no direct or cumulative effects on recreation or wilderness activities.

21. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING:
Estimate population changes and additional housing the project would require. Identify cumulative effects to population and housing

The proposed project does not include any changes to housing or developments. Population and housing will not be affected.

No direct or cumulative effects to population or housing are anticipated.

22. SOCIAL STRUCTURES AND MORES:
Identify potential disruption of native or traditional lifestyles or communities.

There are no native, unique or traditional lifestyles or communities in the vicinity that would be impacted by the proposal.

23. CULTURAL UNIQUENESS AND DIVERSITY:
How would the action affect any unique quality of the area?

The proposed project will have no effect on any unique quality of the area.

24. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:
Estimate the return to the trust. Include appropriate economic analysis. Identify potential future uses for the analysis area other than existing management. Identify cumulative economic and social effects likely to occur as a result of the proposed action.

This project will create an up to 100% increase in the revenue to the trust off this land. The lease is currently on a 25% crop share and when the production increases the payments to the trust will also increase. There will likely be no other economic impacts other than the lessee making more money and returning that money to the local economy.

V. FINDING

25. ALTERNATIVE SELECTED:

Alternative B (the Proposed Action) – Under this alternative, the Department does grant permission to build two center pivots and associated infrastructure.

26. SIGNIFICANCE OF POTENTIAL IMPACTS:

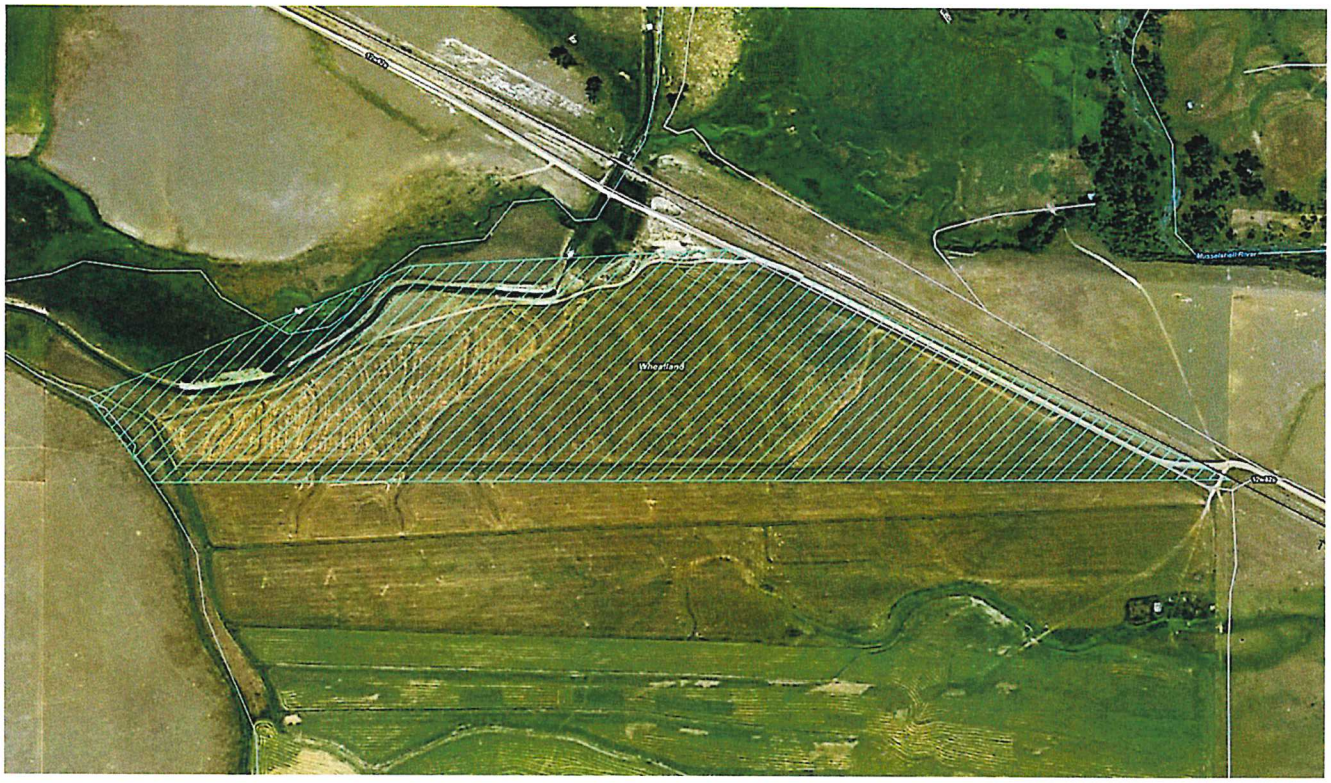
I have evaluated the potential environment effects and have determined that no negative long-term environmental impacts will result from the proposed activity.

27. NEED FOR FURTHER ENVIRONMENTAL ANALYSIS:

	EIS		More Detailed EA	XXX	No Further Analysis

EA Checklist Prepared By:	**Name:** Dustin Lenz **Title:** Land Use Specialist	
Signature:		**Date:** 21 June 2019

EA Checklist Approved By:	**Name:** Jocee Hedrick **Title:** Unit Manager, Northeastern Land Office	
Signature:		**Date:** 6/25/19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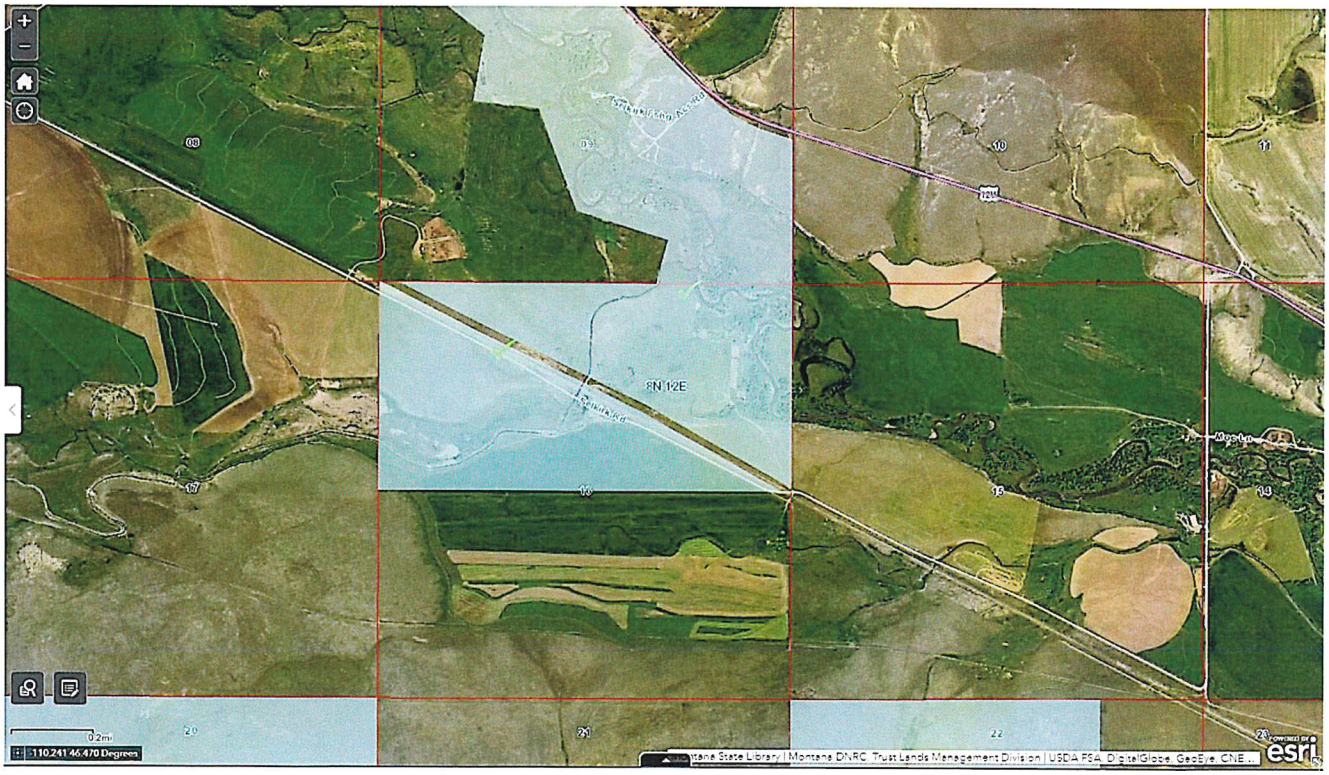
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